Nonmechanical Low Back Pain


Key Points:
- Key risk factors include history of cancer, age, constitutional symptoms, IDU, and failure to improve
- Data below are drawn from primary care settings -> consider different etiologies higher in ED / hospital
- Data on test characteristics for imaging studies is limited and based on questionable gold standards -> MR is test of choice for most concerning etiologies below

Causes (% in primary care settings)
- Nonmechanical spinal (1%)
  - Neoplasia (0.7%):
    - Multiple myeloma, breast, lung, prostate, kidney, lymphoma / leukemia, spinal cord, vertebral, retroperitoneal
  - Infection (0.01%)
    - Osteomyelitis, septic discitis, paraspinous abscess, epidural abscess, shingles
  - Inflammatory arthritis (HLA-B27) (0.3%)
    - Ankylosing spondylitis, psoriatic spondylitis, Reiter, IBD
  - Paget and Scheuermann disease
- Visceral (2%)
  - Aortic aneurysm
  - Pelvic: prostatitis, endometriosis, PID
  - Renal: nephrolithiasis, pyelonephritis, perinephric abscess
  - GI: pancreatitis, cholecystitis, penetrating ulcer
- Mechanical (97%)
  - Lumbar strain / sprain (70%)
  - Degenerative disc / facets (10%)
  - Disc herniation (4%)
  - Spinal stenosis (3%)
  - Osteoporotic compression fracture (4%)
  - Spondylolisthesis (2%)
  - Traumatic fractures (<1%)
  - Congenital disease (<1%)
  - Spondylolysis (stress fracture)
  - Spinal instability and internal disc disruption (controversial)

Risk factors: (1-10% probability of systemic disease)
- History of cancer -> 14.7 positive likelihood ratio for cancer(0.31 sensitivity, 0.98 specificity)
- Age >=50
- Fever
- Weight loss
- Hematuria
- Adenopathy
- IV drug use
- Failure to improve after 1 month of therapy
- Others:
  - Trauma
  - Steroid use
  - Neurologic deficits beyond sciatica
  - Quality of pain: severe, constant, persistent at night

Lab tests: CBC and ESR -> otherwise as directed by history, physical, and radiography

Imaging
- Plain radiography:
  - Malignancy: 60% sensitive, 99.5% specific in primary care settings
  - Osteomyelitis: usually late finding
  - Compression: fractures: limited data, but poor specificity for detecting acuity of fracture
  - Ankylosing spondylitis: occurs early
NR Dec-03

- CT: good for bones (fractures)
  - Herniated discs: increasing sensitivity with good comparisons with MR data, lower specificity (as with MR)
  - Visceral etiologies

- MRI: better for nerves / soft tissue, less for bone
  - Infection: test of choice – lack of studies assessing accuracy of MRI for epidural abscess
  - Metastases: possibly more sensitive than bone scintigraphy
  - Disc and stenosis: 82-89% sensitivity

- Bone scintigraphy